

[54] FRICTIONLESS VALVE/PUMP

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[57] ABSTRACT

A valve having no friction producing components includes a flexible and resilient tube for carrying a fluid, an electrically energizable coil for producing an electromagnetic force when energized, a magnetically attractable element, and an elongate leaf spring attached near one end to the coil and looped outwardly, upwardly and back toward the coil, with the magnetically attractable element attached to the leaf spring near the other end. The leaf spring normally holds the magnetically attractable element out of contact with the coil, but when the coil is energized, the element is attracted towards the coil. The one end of the leaf spring attached to the coil is also formed to extend upwardly and over the magnetically attractable element to act as an anvil, and the other end of the leaf spring attached to the element extends upwardly towards the anvil to form a pinching tab. The tube is positioned between the anvil and pinching tab so that when the coil is de-energized, the tube is pinched closed between the tab and anvil. When the coil is energized, the element and pinching tab are attracted towards the coil and away from the anvil to release the tube and allow it to open.

5 Claims, 9 Drawing Figures

